

NOTES ON ASIAN-PACIFIC **PODOCARPACEAE**, I (**PODOCARPUS**)

David J. de Laubenfels, Dept. of Geography, Syracuse University, Syracuse, N.Y. 13244

John Silba, 198 W. Hoffman Ave., Lindenhurst, N.Y. 11757

In reviewing old and new herbarium collections of **Podocarpus** from the Asian-Pacific area it seems that three new entities are worth recognizing. Other poorly explored areas in these regions need further collecting, particularly of fertile material and may yet yield other species to be described.

Podocarpus neriifolius Don has long been known from herbarium collections in southern Asia. One of these areas further studied involved collections made in northern Burma and adjacent areas. After seeing duplicate material of an interesting collection made by J. Keenan et al from Burma at Kew and Harvard, the original more complete specimen was recently seen at Edinburgh. The specimen **Keenan et al 3081** (E) has distinctly wide short acuminate leaves compared to typical **P. neriifolius**. However, even further distinctions were evident on the more complete specimen at Edinburgh. Of most striking interest the specimen was noted as being an epiphytic shrub in the wild and is the only **Podocarpus** species thus known to be an epiphyte. Other features such as relatively long foliola on the female strobilus and large globose seed structure seem to distinguish this collection markedly from typical **P. neriifolius**. A collection made in Assam as **Parry 108** (K) from Chakang, Lushai Hills (Lakher Country), 1829 m., has similar relatively wide acuminate leaves. It is not known however if **Parry 108** came from an epiphytic plant though it could be the same species as **Keenan et al 3081**. Also, **Henry 12919** (K, A, US, NY) from Sjemes Yub, Yunnan, China, 1219 m. has relatively large leaves, however the leaf is lanceolate and the specimen was from an enormous tree 5.5 m. in circumference. The collection by Henry seems to be within the range of typical **P. neriifolius** and is here treated as that species.

The Keenan specimen does not easily fit into any section of the genus **Podocarpus**, but goes reasonably well in section **Globulus** where wide acuminate leaves with broad flat midribs are well represented. One or two erect bud scales are not unusual in the section **Globulus** although overlapping bud scales are characteristic. The Keenan specimen has tight buds but with some erect scales. Actually this new species resembles **P. teysmanii** Miquel rather closely but the erect scales are a difference while the long foliola are unique for this section, those of **P. teysmanii** being notably short (1 mm.). **Podocarpus teysmanii** is a low elevation equatorial understorey tree.

Podocarpus epiphyticus de Laubenfels et Silba, sp. nova.

Frutex epiphytica. Gemma globosa, 3 mm. longis, squamis exterioribus triangularibus. Folia linearia vel elliptica, 11.3-13.3 cm. longis et 2.2-2.3 cm. latis, costis superis latis prominentibus, apicibus

acuminatis, petiolis 5-6 mm. longis. Strobili feminei pedunculis 9-20 mm. longis, foliolis basalibus 2-2.5 mm. longis, receptaculis 6.5-7 mm. longis. Fructibus globosa, 8 mm. longis et 6-7 mm. latis.

Northern Burma: Kachin State, Sumprabum sub-division, eastern approaches from Sumprabum to Kumon Range, Kanang to Mapi-Zup, western slopes, 1829-2591 m., an epiphytic shrub, scattered, J. Keenan et al 3081 (Holo-E, Iso-K, A).

An epiphytic shrub. Leaves linear-elliptic, 11.3-13.3 cm. long by 2.2-2.3 cm. wide, narrowed gradually to a bluntly acuminate apex, midrib a distinct broad raised ridge above, base gradually narrowed to a petiole 5-6 mm. long. Female cone on a peduncle 9-20 mm. long, receptacle 6.5-7 mm. long with 2 bracts, foliola 2-2.5 mm. long. Seed globular, 8 mm. long by 6-7 mm. wide.

Recently de Laubenfels (1978) had revised the nomenclature of the Philippine *Podocarpaceae*. Since then further herbarium collections have been made from the island of Palawan and one collection is quite distinct in its pollen cones. Other species previously known from Palawan include *P. neriifolius* from Tabat 19914 (US) and *P. polystachyus* R. Brown from Foxworthy 904 (BO, K, NY, US).

The collection here discussed from Palawan by Ridsdale suggests *P. rumphii* Blume because of the globular buds, the low elevation, and the long narrow leaves. The pollen cone is however markedly distinct from typical *P. rumphii*, the leaves are tapering at both ends and the midrib is sharp and narrow. Tapering leaves suggest *Podocarpus* sections *Longifoliolatus*, section *Polystachyus* and section *Macrostachyus*. The last section is indeed characterized by pollen cones with elongated apices, more or less globular buds, and narrow but sharp midribs. The new species based on the Ridsdale specimen most resembles *P. crassigemma* de Laub. a high elevation species of New Guinea with substantially smaller leaves, more definitely spreading bud scales, and pollen cones on a peduncle, as well as thick (stiff) leaves.

Podocarpus palawanensis de Laubenfels et Silba, sp. nova.

Arbor ad 7 m. alta. Gemma 4-6 mm. longis et 4-5 mm. latis, squamis exterioribus triangularibus. Folia linearia, ad basis et apicis, lanceolata, 10.5-18.4 cm. longis et 0.8-1.1 cm. latis, costis superioribus angustibus prominentibus, apicibus acutis, petiolis 5-7 mm. longis. Strobili masculi 3.5-4.5 cm. longis et 6.5-8 mm. latis, apicibus microsporophyllis lanceolatis 4 mm. longis. Strobili feminei ignoti.

Philippines: Palawan: Pagdanan Range, Ibangley Brookside Hill, 40 m. altitude, closed broad-leaved rainforest, C.E. RIDSDALE SMHI 1502 (Holo-L).

While working on the Flora Malesiana project de Laubenfels (1982) had included a number of odd *Podocarpus* specimens under a new species he would soon publish. Later in his revision of the genus *Podocarpus*

de Laubenfels (1985) named the species *P. rubens* based on a number of allied collections in Indonesia and New Guinea. After reviewing these different populations it seems a separate entity from high elevation in the Celebes is worth recognizing. The Celebes material is different from typical *P. rubens* in that the leaves are not linear in shape but are elliptical and narrowly blunt at the apex. Little is known about the elliptical leaved *Podocarpus* entity from the Celebes, but the pollen cone is rather smallish and solitary.

Another interesting collection made in Indonesia is a *Podocarpus* from the island of Ambon. The collection *Eyma* 3078 (L) was annotated by N.E. Gray as having continuous upper hypoderm in the leaves and in this way resembling *P. gibbsii* Gray. The *Eyma* collection from Ambon also has elliptical leaves similar to the high elevation Celebes material. It has yet to be determined if the high elevation Celebes material has continuous upper hypoderm but the Ambon specimen is included under the new species on the basis of leaf shape, and belonging to *Podocarpus* section *Foliolatus*.

Podocarpus indonesiensis de Laubenfels et Silba, sp. nova.

Arbor ad 1.5 m. alta. Gemma 3 mm. longis et 5 mm. latis, squamis exterioribus triangularibus, apicibus patulis vel recurvatis. Folia elliptica, 3.3-5.2 cm. longis et 0.5-0.8 cm. latis, costis superioribus prominentibus, apicibus acutis vel obtusa, petiolis 3-4 mm. longis. Strobili masculi 2 cm. longis et 4 mm. latis. Strobili feminei ignoti.

Type: Indonesia: Celebes: Massimbollong, Lati-Madjong, 2700 m., moss forest, *Eyma* 1034 (Holo-L, Iso-BO).

Indonesia: Celebes: between Kambuno and Tamadu, Masamba, *Eyma* 1406 (L,BO), 2550-2800 m.; Celebes: Massimbollong, Enrekang, 3000 m., *Eyma* 982 (L, BO); Celebes: between Pokapindjand and Tenabang, 2800-3000 m., *Eyma* 624 (L,BO); Ambon: Salahutu Bivouac III, around summit, 1000 m., *Eyma* 3078 (BO, L).

A tree 1.5 m. or more tall. Buds relatively short, 3 mm. long by 5 mm. wide, with acute triangular scales, apex spreading or somewhat recurved. Leaves elliptical, 3.3-5.2 cm. long by 5-8 mm. wide; midrib a raised ridge above, somewhat broader below; leaves sometimes with continuous upper hypoderm, margins wavy, apex bluntly acute to obtuse, base narrowed to a petiole 3-4 mm. long. Male pollen cone solitary, 2 cm. long by 4 mm. wide.

Literature Cited

- de Laubenfels, D.J. (1978). The Taxonomy of Philippine Coniferae and Taxaceae. *Kaliskan, Philipp. J. Biol.* 7(2): 117-152.
- _____. (1982). Identification Lists of Malesian Specimens. *Fl. Males.*: 1133-1160.
- _____. (1985). A Taxonomic Revision of the genus *Podocarpus*. *Blumea* 30: 251-278.